

**REMARKS**

Favorable consideration and allowance are respectfully requested for claims 1 - 11 in view of the foregoing amendments and the following remarks.

The rejection of claim 11 under 35 U.S.C. § 112, second paragraph, as indefinite is respectfully traversed.

Claim 4 is amended to clarify that the language in the preamble is incorporated into and made part of the claim. Specifically, the phrase “a transparent synthetic resin body composed of at least two interpenetrating polymer networks of different polymer materials and at least one photochromic dye homogeneously distributed therein” is reinserted at the end of the claim.

Claim 11 is amended to replace the phrase “during polymerization” with “simultaneously with the steps of producing a first polymer network and producing a second polymer network”. Support for this amendment may be found in the specification, for instance, at least in paragraphs 13 and 14. The claim is believed to be definite and reconsideration and withdrawal of the rejection are respectfully requested.

The rejection of claims 1-6, 8-10 and recently-submitted claim 11 under 35 U.S.C. § 103(a), as obvious over Sommerfeld, is respectfully traversed.

The present invention relates to photochromic plastic objects and methods of forming photochromic plastic objects composed of at least two interpenetrating polymer networks and at least one photochromic dye *homogeneously distributed* therein.

Sommerfeld does not disclose or suggest an object with a photochromic dye distributed homogeneously throughout two interpenetrating networks. At least one of the interpenetrating polymer networks disclosed by Sommerfeld *must* be formed by polymerization in a solvent (see, for instance, the abstract of Sommerfeld, stating “[a]t least one of the polymer networks is formed by polymerization in a solvent”; see also the summary of the invention stating: “at least two polymer networks . . . with the proviso that at least one of the polymer networks is formed by polymerization in a solvent . . . .” Because a solvent is

used in the polymerization, the technique of Sommerfeld would not result in a homogenous distribution of photochromic dye.

The recent Office Action indicates that Sommerfeld discloses removing the solvent prior to using the formed polymeric network composition. The Office Action also indicates that the claims do not recite forming a polymer network without a solvent, and that claim 4 might also include forming a polymer network with a solvent followed by its subsequent removal. The thought appears to be that the dye may be added after the polymer network is formed.

Applicants respectfully submit that once a polymer network is formed, it is impossible to homogeneously distribute any dye throughout the network. The dye must be present before the mixture is formed into a polymeric network so that the dye may be mixed in. After these steps, the polymeric network may be formed and the dye is homogeneously distributed throughout the network.

If a solvent is used during the polymerization, and the solvent is later removed, and then a dye added, the dye will not and cannot be homogeneously distributed throughout the network. The physical structure of the already-formed network will prevent the dye from penetrating. If, instead, the dye is added before the solvent is removed, the dye will remain dissolved in the solvent. In this instance, the dye will also be removed with the solvent. The dye will not, in any event, be homogeneously distributed throughout the network at the end of the polymerization process.

In paragraph 8 of his declaration, Jobst La Dous explains that to homogeneously distribute the dye within the resin, the dye is introduced to the polymer network before or during polymerization. Paragraph 9 explains that if mass dying is used, no solvent may be present.

Thus, the present record shows that in order to create an object composed of at least two interpenetrating polymer networks and at least one photochromic dye *homogeneously distributed* therein, the dye must be present before or during polymerization and there must not be a solvent. As a result, because the claims require a homogeneously distributed photochromic dye, the claims (1) exclude

processes where a solvent is used in the polymerization and (2) require that the dye is present before or during the polymerization.

The methods of Sommerfeld *require* a solvent in the formation of at least one of the networks. As a result, these methods will never achieve an object with a homogenously distributed photochromic dye, as is presently claimed.

Any person trying to create an object composed of at least two interpenetrating polymer networks and at least one photochromic dye *homogeneously distributed* therein would have to chose to disregard the explicit requirements of the Sommerfeld reference, because the reference explicitly requires a solvent. Further, the reference appears to be silent as to the timing of providing the photochromic dye. There is nothing in the present record that would provide one of skill in the art any motivation to select certain portions of the teachings of Sommerfeld and following those instructions, and then disregard other explicit instructions taught by the reference.

Accordingly, based on the cited reference, one of skill in the art would never arrive at the presently contemplated invention. Moreover, based on the explicit requirement of a solvent during formation of at least one of the networks, the reference actually teaches away from the steps that are necessary to arrive at the presently claimed invention.

Each of the claims are directed to a transparent synthetic resin body composed of at least two interpenetrating polymer networks of different polymer materials and at least one photochromic dye homogeneously distributed therein, or a method of forming such a body. Because the teachings of Sommerfeld could never achieve such a body, as they fail to teach the necessary steps to achieve such a body, and also because Sommerfeld fails to state that the photochromic dye is homogeneously distributed in the body, the reference fails to teach each and every element of the presently claimed invention. Moreover, in order to arrive at the presently claimed invention, one of skill in the art would have to disregard the express requirements of the reference. Absent some motivation,

either in the prior art or knowledge of a person of skill in the art, a proper showing of obviousness has not been made.

Accordingly, the Office Action fails to lay out a *prima facie* showing of obviousness. Reconsideration and withdrawal of this rejection are therefore respectfully requested.

CONCLUSION

In view of the foregoing, the application is respectfully submitted to be in condition for allowance, and prompt favorable action thereon is earnestly solicited.

If there are any questions regarding this response or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323 (Docket # 100341.52572US).

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Respectfully submitted,



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